SPEKTOR, A.M.

Posttachycardia syndrome in paroxysmal tachycardia. Klin.med. 35 no.3:137-142 Mr '57. (MIRA 10:7)

1. Iz Sochinskoy gorodskoy ob"yedinennoy bol'nitsy No.2 (glavnyy vrach Ye.N.Charchinyan)
(TACHYCARDIA, PAROXYSMAL, compl.
post-tachycardia synd. (Rus))

SPEKTOR, A.M.

Two unusual cases of complete auriculoventricular block with the Adams-Stokes syndrome. Kaz. med. zhur. no.6:61-63 N-D **'60.**
(MIRA 13:12)

1. **Kardiologicheskoye otdeleniye Sochinskoy gorodskoy bol'nitsy** No. 2 (**glavvrach - Ye.N. Charchiyan**).
(HEART BLOCK)

SPEKTOR, A.M. (Sochi); NOVINSKIY, G.D. (Moskva); FROLOV, D.A. (Kuybyshev-obl.)

Concerning Professor A.M.Sigal's article "Notes on medical thought and on the problem of technic in the field of internal medicine." Kaz. med. zhur. no.6:90-94 N-D '60. (MIRA 13:12)
(MEDICINE, INTERNAL) (SIGAL, A.M.)

SPEKTOR, A. M. (Sochi)

Severe complications following use of bicillin. Klin. med. no.9: 133-134 '61. (MIRA 15:6)

1. Iz kardiologicheskogo otdeleniya Sochinskoy gorodskoy bol'nitsy No. 2 (glavnyy vrach Ye. N. Charchiyan)

(PENICILLIN--TOXICOLOGY)

SPEKTOR, A.M. (Sochi)

Letter to the editor. Grud. khir. 6 no.4:121 Jl-Ag '64. (MIRA 18:4)

(2)

L 20385-66 EWT(1)/ETC(f)/EPF(n)-2/EWG(m)/ETC(m)-6 IJP(c) WW/AT

ACC NR: AT6001560 SOURCE CODE: UR/3136/65/000/911/0001/0020

AUTHOR: Kovan, I. A.; Podgornyy, I. M.; Rusanov, V. D.; Smirnov, V. P.; Spektor, A. M.; Frank-Kamenetskiy, D. A. 72

ORG: Institute of Atomic Energy im. I. V. Kurchatov (Institut atomnoy energii) 63

TITLE: Magnetosonic heating of a plasma 27 21 B+1

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-911, 1965. Magnitno-zvukovoy nagrev plazmy, 1-20

TOPIC TAGS: magnetoacoustic effect, magnetoactive plasma, plasma resonance, plasma waveguide, plasma oscillation, plasma heating, magnetic trap/ Vega

ABSTRACT: The authors present results of a study of excitation, propagation, and absorption of oblique magnetic-sound waves in a hydrogen or helium plasma at 10--30 Mcs. More attention than in the past is paid to the excitation of magnetic-sound waves, and particularly magnetic-sound resonance in a confined plasma. Various experiments with direct magnetic-sound waves are discussed and experiments aimed at heating plasma with the aid of oblique waves and magnetic-sound resonance are described. A "Vega" adiabatic trap with high frequency source of cold plasma, designed for this purpose is briefly described. The plasma in these experiments was produced by high frequency discharge, using generators operating at 20--50 Mcs

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with a nominal power of ~200 kw. The transverse field was produced by discharging a capacitor through a solenoid. The magnetic-field pulse was 20 msec. The investigations have shown that when beyond-cutoff plasma-waveguide conditions are produced resonance accumulation of energy is possible in the plasma column when the magnetic sound wave propagates almost transverse to the static magnetic field. This phenomenon is treated as magnetic-sound resonance at lower radial modes. The spatial amplification obtained in strong magnetic fields corresponds to a resonator Q ~ 15, assuming that only transverse waves are excited in the resonator. This value of Q is limited by dissipative mechanisms, particularly nonlinear processes. The study of the oblique magnetic-sound waves has shown that the dissipative processes can be more intense here and that in the case of nonstationary waves of large amplitude a nonlinear dissipation, connected with collective mechanisms, can arise. The experiments have also shown that such a wave can be used to transfer energy effectively to the electronic component. The two plasma heating methods considered (resonant and shock-wave) can be particularly promising for the production of hot plasma in toroidal traps. The authors thank Ye. K. Zavoyskiy, M. A. Leontovich, B. B. Kadomtsev, and V. D. Shafranov for numerous discussions. Orig. art. has: 11 figures and 11 formulas.

SUB CODE: 20/ SUBM DATE: none / ORIG REF: 028/ OTH REF: 003

Card 2/2

SPEKTOR, A.M.

Hyperkinetic form of Adams-Stokes syndrome. Kardiologiia no.3:88-89 '65. (MIRA 18:10)

1. Kardiologicheskoye otdeleniye Sochinskoy gorodskoy bol'nitsy Nr.2. (glavnyy vrach Ye.N.Charchiyan).

SPEKTOR, A.N., inzh.

Optimum design of blast furnace hearths. Stal' 20 no. 12:1071-1074 D '60. (MIRA 13:12)

1. Gipromez.
(Blast furnaces--Design and construction)

YARKHO, Ye.N.; SPEKTOR, A.N.

Direct recovery of iron in capitalist countries. Biul.tekh.-ekon. inform. no.9:86-91 '61. (MIRA 14:9)
(Iron--Metallurgy)

YARKHO, Yo.N.; SPEKTOR, A.N.

Nodulizing of ores and concentrates in capitalist countries. Biul.-tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.8:85-89 '62. (MIRA 15:7)

(Ore dressing)

POKHVISNEV, A.N., doktor tekhn.nauk, prof.; SPEKTOR, A.N., inzh.;
YARKHO, Ye.N., inzh.

Calculating the charge for the production of partly reduced (metallized) ore and coal nodules. Stal' 22 no.2:106-109 F '62.
(MIRA 15:2)

1. Moskovskiy institut stali i Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgicheskikh zavodov.
(Ore dressing)

SPEKTOR, A.N.; YARKHOV, Ye.N.

Efficient design of blast furnace hearths and hearth bottoms. Metallurg 8 no.5:3-4 My '63. (MIRA 16:7)

(Blast furnaces—Design and construction)

GORDON, S.A., kand.tekhn.nauk; SPEKTOR, A.N.; CHURBAKOV, V.F., kand.tekhn.nauk

Recovery of germanium from coal and ores abroad. Biul.tekh.-ekon. inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.9:83-88 '63. (MIRA 16:10)

POKHVISNEV, A.N.; SPEKTOR, A.N.; YUSFIN, Yu.S.

Sulfur removal in the coking process. Izv. vys. ucheb. zav.; chern. met. 6 no.7:33-38 '63. (MIRA 16:9)

1. Moskovskiy institut stali i splavov.
(Coke) (Desulfuration)

POKHVISNEV, A.N.; SPEKTOR, A.N.; VAGIN, A.A.

Pyrometallurgical method of treating iron-titanium ores from the "Lysanskoye" deposit. Izv. vys. ucheb. zav.; chern. met. 7 no.3:23-28 '64. (MIRA 17:4)

1. Moskovskiy institut stali i splavov.

CHUKHANOV, Z.F.; KONDAKOV, V.V.; KALYUZHNYY, V.V.; RYZHONKOV, D.I.;
SPEKTOR, A.N.; STROKOVSKIY, L. Kh.; KHORZHEMBO, .L.; YARKHO, Ye.N.
KUNAKOV, K. Ye.

Pilot plant for the study and application of the hear regenerating direct process of cast iron and steel production. Ispol'. tverd. topl., ser. maz. i gaza no. 5:182-192 '64 (MIRA 19:2)

POKHVISNEV, Anatoliy Nikolayevich, prof.; KOZHEVNIKOV, Igor' Yulianovich; SPEKTOR, Aleksandr Nutovich; YARKHO, Yevgeniy Naumovich

[Iron production in foreign countries without the use of blast furnaces] Vnedomennoe poluchenie zheleza za rubezhom. [By] A.N.Pokhvisnev i dr. Moskva, Izd-vo Metallurgiia, 1964. 367 p. (MIRA 17:7)

ZARAKHANI, A.I.; SPEKTOR, A.N.; SHCHEPILOV, F.I.; YUSFIN, Yu.S.; BANNYY, N.P.;
POL'KIN, S.I.; POKHVISNEV, A.N.

Technical and economic evaluation of the concentrability of lean iron ore. Izv. vys. ucheb. zav.; chern. met. 8 no.7:23-27 '65. (MIRA 18:7)

1. Moskovskiy institut stali i splavov.

ZARAKHANI, A.I.; SPEKTOR, A.N.; SHCHEPILOV, F.I.; YUSFIN, Yu.S.; KARNYY,
N.P.; POL'KIN, S.I.; POKHVISNEV, A.N.

Technical and economic estimate of the concentratability of lean iron ores. Report No.2. Izv. vys. ucheb. zav.; chern. met. 8 no.9:17-21 '65. (MIRA 18:9)

1. Moskovskiy institut stali i splavov.

LEMUNOV, G.I.; [illegible], [illegible]; [illegible]; YUSFIN, Yu.S.

Unit for determining the softening and reducibility temperature for iron ore materials. Zav.lab. 31 no.3:385-386 '65. (MIRA 18:12)

1. Moskovskiy institut stali i splavov.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Ca

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COMMON ELEMENTS

COMMON VARIABLES INDEX

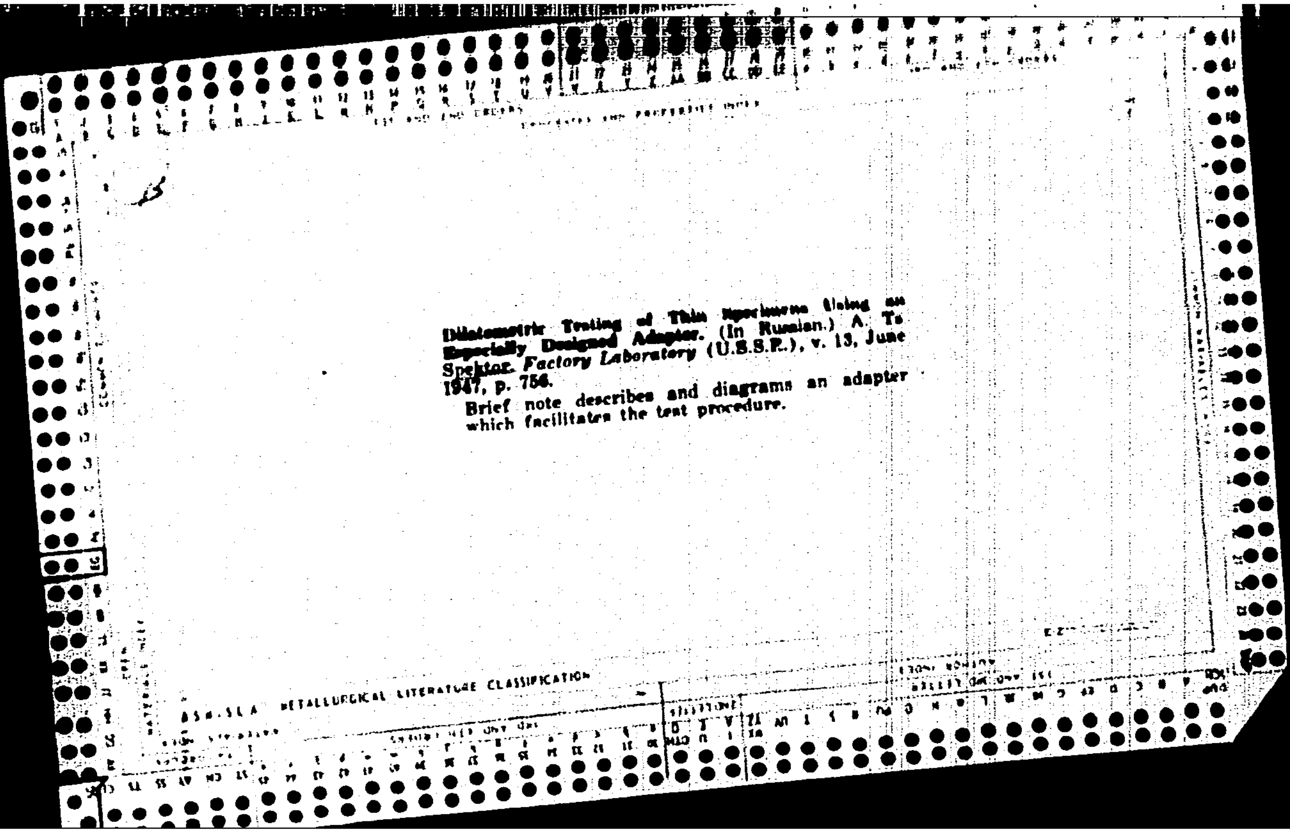
Etching of microspecimens by heating. A. Ts. Spektor. *Zavodskaya Lab.* 13, 630-1(1947).—Place the specimen, with polished surface up, on a metal sheet resting on an elec. plate and heat. Observe the changes in coloration of the polished surface during heating. The dark blue color which appears changes to gray, and then the surface becomes bright, as before the heating. At the instant when the gray color changes to bright, immerse the specimen in water or mercury, taking care not to wet the polished surface. After cooling, the specimen is ready for examn. The cementite appears dark on a gray background of ferrite. This method can be used to det. the distribution and form of cementite in instrument steel during rolling and annealing.

B. Z. Kamich

OPEN

MATERIALS INDEX

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Dilatometric Testing of Thin Specimens Using an Especially Designed Adapter. (In Russian.) A. Ts. Spektor. *Factory Laboratory* (U.S.S.R.), v. 13, June 1947, p. 756.

Brief note describes and diagrams an adapter which facilitates the test procedure.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

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Stripping of the clad layer from a bimetal without injuring the basis metal. A. Ts. Spektor. *Zavodskaya Lab.* 14, 250-1(1948).—Tombac on mild steel is stripped by anodic soln. in a 80% soln. of H_3PO_4 (60° Bé.). With 1 amp., a layer of 0.2 mm. is removed in 1.5 hrs. The basis metal remains unattacked. N. Thon

Inst. Ferrous Metallurgy Ukr. Acad Sci

SPEKTOR, H. Is.

Volumetric changes of hardened steel upon heating. V. N. Gridnev and K. Ia. Spektor. *Trudy Inst. Chernoi Met., Akad. Nauk Ukr. S.S.R.* 6, 83-90(1953); *Referat. Zhur., Khim.* 1954, No. 31395.—The measurements of vol. changes were made by the method of hydrostatic weighing with EtBr. Investigated were the steels 20, 40, U7, and 35KhG2. Hardened steel was made into cylinders 8-9 mm. in diam. and 23-26 mm. long. The specimens were heated to 900-50° and hardened in 10% NaOH. Vol. changes during the annealing process were measured in the interval of 150-680°; duration of annealing 1 hr. Annealing at 150° caused an insignificant diminution of specific vol. At 260° there was a noticeable increase in specific vol. owing to decompn. of residual austenite. At 300° there was a sharp contraction of specific vol. owing to carbide formation which progresses with time of annealing. Carbide formation does not end at 300° even after 40 hrs. Slight contraction was noticeable up to 680°. Hydrostatic weighing can be used for studying volumetric effects in phase transformations. The extent of specific vol. decrease (annealing at 150°) in C steels depended on the C content. In low-C steels, changes in vol. were insignificant. M. Hosch

SPEKTOR, A. Ts. and SVECHNIKOV, V.N.

"The Effect of Zirconium on the Polymorphism of Iron"

an article in the book "Questions on the Physics of Metals and Metal Science", AS Ukr. SSR, Kiev, 1955, 151 pp.

So: Sum No 1102, 19 Oct 56

Spektor, A. T.

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1-FE

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The influence of zirconium upon the polymorphism of iron. V. N. Svechnikov, and A. T. Spektor. *Voprosy Fiz. Metal. i Metalloved., Akad. Nauk Ukrain. S.S.R., Sbornik Nauch. Rabot* 1955, No. 6, 51-61.—Pure Armco iron was alloyed with 0.1, 0.3, 0.6, 0.7, 1.0, and 4.0% Zr, and the final alloy was analyzed for actual Zr contents, thus, e.g., this prepd. with 4.0% Zr actually contained only 3.5%. These alloys were investigated at 900-72° for the α → γ and γ → α transformations of Fe. At a true Zr content of 3.5%, reversible transformation will take place at 905-10°. Thus a value was obtained different from the one cited by Allison and Sykes (*C.A.* 22, 1942) and the one given by Vogel and Tonn (*C.A.* 26, 2050). This is because the alloy must be cooled at 5-10°/min. or erroneous temp. readings will be obtained; these are due to manifold causes, like, e.g., the entrapping of Fe_2Zr_3 by α-Fe; for the lower percentage Zr the γ ⇄ δ transformation could show a disturbing influence. Another very important factor is the purity of the Fe; even traces of other elements will change the transformation temp. tremendously.

Werner Jacobson

Spektor, A. Ts.

18(4,7); 25(1) PHASE I BOOK EXPLOITATION SOV/2306

Akademiya nauk Ukrainskoy SSR. Institut metallofiziki

Voprosy fiziki metallov i metallovedeniya (Problems in the Physics of Metals and Metallography) Kiyev, Izdo-vo AN Ukrainskiy SSR, 1959. (Series: Its: Sbornik nauchnykh rabot, Nr 9) Errata slip inserted. 3,000 copies printed.

Ed. of Publishing House: V.L. Shkurko; Tech. Ed.: M.I. Yefimova; Editorial Board: V.N. Svechnikov, Academician, Academy of Sciences Ukrainian SSR (Resp. Ed.); S.D. Gertsriken, Doctor of Physical and Mathematical Sciences; and I.Ya. Dekhtyar, Doctor of Technical Sciences.

PURPOSE: This collection of articles is intended for scientific workers, aspirants, and engineers in the fields of the physics of metals, metallography, and metallurgy. It may also be useful to students of advanced courses in metallurgical and physical faculties.

COVERAGE: This collection of articles deals with the following topics: effect of high-speed heating, heat treatment, deformations, and crystallization conditions on phase transformations, structures, and properties of metals and alloys; the effect of additional alloying components on volumetric and intercrystalline diffusion in alloys; and the effect of repeated quench hardening and radioactive and ultrasonic treatment on the physical properties of alloys. No personalities are mentioned. References follow several of the articles.

Svechnikov, V.N., and A.Ts. Spektor. Investigation of Transformations in the Solid State of Cobalt-rich Co-Cr Alloys 105

Changes in cobalt-base solid solutions and a more precise determination of phase ranges in equilibrium diagrams of the Co-Cr system are investigated. The microstructure of alloy samples is discussed.

Svechnikov, V.N., Yu.A. Kocherzhinskiy, Ye.Ye. Maystrenko, V.M. Pan, and A.K. Shurin. Investigation of the Cr-Nb-V Alloy System 120

Constitution diagrams and microstructures of various binary and ternary alloys were investigated. Changes of hardness with changes of temperature are shown.

Lesnik, A.G., and G.V. Khar'kova. Displacement of Equilibrium Curves of α- and γ- phases in the Fe-Cr Alloy System Due to Prolonged High-temperature Heating of the γ- phase 133

Electrolytic chromium and iron were used for making the alloys. Spiral samples, 20mm. long, were heated in a vacuum (10-[illegible]mm. Hg), and electrical resistivity was measured. The drop of resistivity at the $\alpha \to \gamma$ transformation is discussed.

Tikhomova, Ye. A. Anisotropy in the Diffusion in Cu-Au Alloys Undergoing Ordering 139

The calculation of diffusion coefficients for alloys undergoing ordering is made analytically by the method of mean energies and by the "configuration method."

Gertsriken, S.D., and M.P. Pryanishnikov. Investigation of Volumetric Diffusion of Iron in Alloys 147

Alloys composed of Fe + 0.27 percent Al, and Fe + 0.39 percent Al, were investigated. Samples, 10 x 15 x 2.5mm., were deformed and annealed. The mean grain size (0.5 to 1mm.) did not change after diffusion annealing (770 to 1250°C). The polished surfaces of the samples were coated with radioactive iron (1 to 2 microns thick). The depth of the diffusion layer (300 to 350 microns) varied with temperature and time of annealing.

Gertsriken, S.D., T.K. Yatsenko, and L.F. Slastnikova. Investigation of Diffusion of Cobalt and Iron Along Grain Boundaries of Cobalt, Nickel, and Iron 154

The absolute values of diffusion coefficients for Co→Co, Co→Ni, Co→Fe, Fe→Fe, and Fe→Ni, i.e., diffusion with regard to time and temperature of annealing, were obtained for grain-boundary diffusion and volumetric diffusion. The relationship between coefficients for both diffusions is discussed.

SVECHNIKOV, V.N.; SPEKTOR, A.TS.; MAYSTRENKO, Ye.Ye.

Investigating transformation in the solid state Co-Cr-Fe alloys.
Sbor. nauch. rab. Inst. metallofiz. AN URSR no.10:168-181 '59.
(MIRA 13:9)

(Cobalt-chromium-iron alloys--Metallography)
(Phase rule and equilibrium)

S/601/60/000/011/004/014
D207/D304

AUTHORS: Svechnikov, V. N., and Spektor, A. Ts.

TITLE: Improving the accuracy of the equilibrium phase diagram of the Fe-Zr system

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 11. 1960. Voprosy fiziki metallov i metallovedeniya, 30-35

TEXT: The authors report a recent (1958) study of the phase diagram of Fe-Zr alloys with up to 30% Zr. The study was carried out as part of a larger investigation of the Fe-Cr-Zr system. Eight alloys were investigated: 0.61, 1.0, 2.23, 3.5, 4.08, 9.3, 15.9 and 30% Zr. They were prepared using electrolytic iron, which was remelted in vacuum, and highly pure Zr iodide. The two components were melted together in МВП-3 (MVP-3) vacuum electric furnace in an atmosphere of argon using Zr oxide crucibles; for alloys with the lowest Zr content, a ТВВ-2 (TVV-2)

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vacuum resistance furnace was employed. Transition temperatures were determined by four different methods: differential thermal technique, high-temperature dilatometric measurements (an absolute method), differential dilatometry, and method of thermoelectric powers. The differential thermal analysis was carried out using the apparatus developed by G. F. Kobzenko and Yu. A. Kocherzhinskiy (Ref. 5: Op. cit., 160-163). The dilatometric and thermoelectric methods were the same as those described by the authors in an earlier publication (Ref. 6: Sbornik "Voprosy fiziki metallov i metallovedeniya," no. 9, 1959). The differential dilatometric method, based on a Shevenar-type instrument with photographic recording, was used to study the $\alpha \rightarrow \gamma$ transition at low temperatures. The alloys were subjected also to microstructure analysis. The most important differences between Vogel and Tonn's results and those reported here are: (1) The $\alpha \rightarrow \gamma$ transition temperature was found to be 960°C in alloys with more than 0.03% Zr, in contrast to 835°C reported by Vogel and Tonn; (2) the $\gamma + \delta +$ liquid triple point was found to be

Improving the accuracy... S/601/60/000/011/004/014
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1345°C, while Vogel and Tonn gave 1335°C. In other respects, the new results confirmed Vogel and Tonn's phase diagram. The authors also report that the solubility of Zr in γ-iron at the eutectic melting point was found to be 1%. There are 3 figures and 6 references: 3 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: T. E. Allibone, C. Sykes, J. Inst. of Metals, 39, 182-185, 1928; E. T. Hayes, A. H. Roberson, W. L. O'Brien, Trans. Am. Soc. of Met., 43, 888-905, 1951.

SUBMITTED: September 10, 1959

Card 3/3

S/601/62/000/016/019/029
E193/E383

AUTHORS: Svechnikov, V.N. and Spektor, A.Ts.

TITLE: Constitution diagram of the iron-zirconium system

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 16. Kiyev, 1962. Voprosy fiziki metallov i metallovedeniya. 136 - 144

TEXT: In continuation of their earlier work ("Voprosy fiziki metallov i metallovedeniya" ("Problems of Metal Physics and Science of Metals"), Izd-vo AN USSR, Symposium. v. 6, 1955, v.11, 1960) and preparatory to a study of the Fe-Zr-C system, the authors studied the constitution of Fe - Zr alloys containing 16 - 84% Zr. In all, 21 alloys were investigated by thermal, X-ray diffraction, hardness and metallographic analyses. The constitution diagram of the Fe-Zr system constructed on the basis of the earlier and present work is reproduced in Fig. 10. The findings of the present authors, although tentative only for alloys with more than 50% Zr, have confirmed the frequently disputed conclusion reached by Wallbaum (Arch. Eisenhüttenw. v.14,

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E193/E383

Constitution diagram of ....

1940-1941; Z. Kristallographie, v.103, 1941, 391-402), who has established the existence of an intermediate η-phase in the system. The concentration range in which this phase exists as a homogeneous phase extends from 30 - 34% Zr; the phase melts at 1 480 °C according to peritectic reaction η → liquid + ε'. There are 10 figures.

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S/601/62/000/016/020/029
E193/E383

AUTHORS: Svechnikov, V.N. and Spektor, A.Ts.

TITLE: Constitution diagram of the $ZrCr_2$-$ZrFe_2$ system

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 16. Kiyev, 1962. Voprosy fiziki metallov i metallovedeniya. 145 - 152

TEXT: Isomorphism of the high-temperature modification of the $ZrCr_2$ and $ZrFe_2$ compounds and the fact that Fe and Cr form a continuous series of solid solutions have been used by some workers as a basis for predicting the existence of a continuous series of solid and liquid solutions in the $ZrCr_2$ - $ZrFe_2$ system. One objective of the present investigation was to check this hypothesis, the other to obtain data from which the constitution of some alloys in the Fe-Cr-Zr system could be inferred. In all, 22 alloys were investigated by thermal analysis and X-ray diffraction measurements of specimens quenched from temperatures ranging from 700 - 1600 °C. The results are summarized in the form of a constitution diagram, reproduced in Fig. 1, the upper

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Constitution diagram ....

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and lower scales showing, respectively, the Cr and Fe contents (wt.%) of the alloys; the circles and dots denote, respectively, structures of the $MgZn_2$ and $MgCu_2$ type; ε is a solid solution based on the high-temperature modification of $ZrCr_2$, ε' being a solid solution based on $ZrFe_2$ and β representing a solid solution based on the low-temperature modification of $ZrCr_2$. It will be seen that the hypothesis of unlimited mutual solubility of $ZrFe_2$ and $ZrCr_2$ in both the solid and liquid states has not been confirmed by experiment. There are two miscibility gaps: one extending from 51-41% Cr at 1 635 °C and the other between 33 and 5% Cr at approximately 1 625 °C; in both cases the transformation from β-phase to liquid takes place by the mechanism of a peritectic reaction. The two peritectic regions meet at a point at which the liquidus passes through a minimum; the corresponding alloy, containing 38% Cr, 16% Fe, 46% Zr, melts at a single temperature of ~1600°C. There are 4 figures and 2 tables.

SUBMITTED: January 19, 1962

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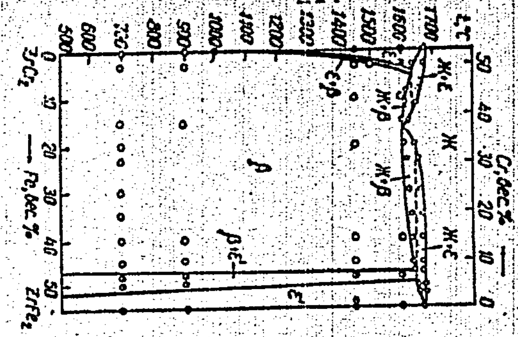
E193/E383

Constitution diagram ....

Fig. 1:



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S/601/62/000/016/029/029
E111/E451

AUTHORS: Svechnikov, V.N., Kocherzhinskiy, Yu.A., Shurin, A.K., Pan, V.M., ~~Spektor, A.Ts.~~, Kobzenko, G.F., Boyko, Yu.A.

TITLE: Equipment for the physico-chemical investigations on high-melting chemically active metals

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalfyzyky. Sbornik nauchnykh rabot. no.16. Kiev, 1962. Voprosy fiziki metallov i metallovedeniya. 220-230

TEXT: The following equipment has been developed over several years in the Otdel metallovedeniya (Department of Science of Metals) of Institut metallofiziki AN UkrSSR (Institute of Physics of Metals AS UkrSSR) for studying alloys such as chromium-niobium-vanadium: 1) Arc furnace, including casting facilities, in which evacuation to 10^{-2} mm is followed by admission of argon to a pressure of 0.2 atm. [Abstracter's note: 10^{-2} mm is a very poor vacuum and the equipment would not work as described.] The argon is then purified in the furnace by a molten titanium getter. A rotary arrangement enables a clean section of the inspection window to be moved into position without breaking the vacuum. 2) Argon purification plant in which air and moisture are removed

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Equipment for the physico- ... E111/E451

by calcium chips at 700 to 750°C, through which a 250 litre batch of gas circulates by convection. 3) Installations for annealing specimens in vacuum or argon at temperatures up to 1000°C and up to 2500°C respectively. 4) An installation for differential thermal analysis in an inert medium at temperatures up to 2000°C with novel arrangements for the thermocouple transmitter, thermostat and furnace and taking 0.5 to 1.5 g specimens. Calibration is effected by melting pure metals, the calibration curve then automatically compensating for systematic errors. 5) An inert atmosphere quenching installation (maximum specimen temperature 1400°C). 6) Vertical inert-atmosphere dilatometer and differential dilatometer for temperatures up to 1500°C. There are 10 figures.

SUBMITTED: January 25, 1962

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35523

S/020/62/143/003/021/029
B101/B144

21.2100
18.1150

AUTHORS: Svechnikov, V. N., Member of the AS UkrSSR, and Spektor, A. Ts.

TITLE: The iron-zirconium phase diagram

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 3, 1962, 613 - 615

TEXT: Following an earlier work (Vopr. fiziki metallov i metalloved. Sborn. nauchn. rabot Inst. metallofiziki AN USSR, no. 11, 1960, p. 30) on the Fe-Zr phase diagram in the range 0 - 16% Zr, the range 16 - 52% Zr was now closely examined, the range 52 - 100% Zr only approximately and preliminarily. 22 alloys were prepared from electrolytic iron refined in H_2 and from zirconium iodide by crucibleless melting in an arc furnace. The melting diagram was plotted from data of the differential thermal analysis while heating from 40°C to 50°C/min. A special device was used (Mashinostroyeniye, Nauchno-tekhnich. sborn. no. 5, Inst. tekhnich. informatsii, Kiyev, 1960, p. 76) which kept the material clean. Thermal analysis after 18 hr annealing at 1250°C in a modernized ТВВ-2М (TVV-2M) oven in argon atmosphere yielded, in the case of 20 - 40% Zr, nonreproducible peaks dependent on the pretreating of the material, from which was

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S/020/62/143/003/021/029

The iron-zirconium phase diagram B101/B144

concluded that the alloys were not yet in equilibrium. Thus, an additional annealing (56 hr at 1250°C, 8 hr at 1450°C) was carried out for alloys containing ≥29% Zr, which yielded alloys in a state of equilibrium. The complete phase diagram of the Fe-Zr alloys was now plotted, drawing on data from the previous work (Fig. 1). Two phases were found, the ε phase based on $ZrFe_2$, and an η phase which corresponded to no stoichiometric formula. The determination of the homogeneity boundary of the η phase from data of microstructure, and the X-ray analysis showed contradictions still unsolved. The change in hardness and in the lattice constant of the ε phase was also measured as a function of the Zr content (Fig. 3). As the range above 52% was only determined from a few non-annealed samples, more exact investigation may reveal chemical compounds. There are 3 figures and 5 references: 2 Soviet and 3 non-Soviet. The reference to the English-language publication reads as follows: E. T. Hayes, A. H. Roberson, W. L. O'Brien, Trans. ASM, 43, 888 (1951).

ASSOCIATION: Institut metallofiziki Akademii nauk SSSR (Institute of Physics of Metals of the Academy of Sciences USSR) [Abstracter's note: USSR probably a misprint, should be: UkrSSR]

Card 2/4

SVECHNIKOV, V.N.; PAN, V.M.; SPEKTOR, A.TS.

Intermediate phases in the iron - zirconium system. Zhur.neorg.khim. 8 no.9:2118-2123 S '63. (MIRA 16:10)

1. Institut metallofiziki AN SSSR.

ACCESSION NR: AT4010698 S/2601/63/000/017/0174/0180

AUTHOR: Svechnikov, V. N.; Spektor, A. Ts.

TITLE: A phase diagram of the chromium-zirconium system

SOURCE: AN UkrRSR. Insty*tut metalofizy*ky*. Sbornik nauchny*kh trudov, no. 17, 1963. Voprosy* fiziki metallov i metallovedeniya, 174-180

TOPIC TAGS: chromium-zirconium system, chromium, zirconium, eutectic point, solid alloy, polymorphism, intermetalloid, alloy phase diagram, metal solubility

ABSTRACT: The article begins with an account of the work done by R. F. Domagala, D. H. McPherson and M. Hansen (Journal Metals, No. 5, 279-283, 1953), who were the first to give the full phase diagram of the Cr-Zr system. The purpose of the investigation conducted by the authors was to derive a phase diagram for the ternary system Cr-$ZrCr_2$-$ZrFe_2$-Fe. In connection with this problem, a binary Cr-Zr diagram was derived for the parts of the system rich in Cr, Cr-$ZrCr_2$. Investigation of the parts rich in Zr, $ZrCr_2$-Zr was limited to verifying previous experiments. The alloys were prepared on a base of Zr and Cr iodide which was electrolytically refined in hydrogen by melting the Cr in an arc furnace in a purified argon medium. To work out the phase diagram differential-

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ACCESSION NR: AT4010698

thermal analysis was used with heating at the rate of 0.7-0.8 deg/sec. The compositions of 26 alloys were analyzed and are shown in Table 1 of the Enclosure. Of these 26 samples, 20 belonged to the class of alloys rich in Cr; these were used to derive the phase diagram of Cr-$ZrCr_2$. Before the analysis all the alloys were subjected to 1200C (in argon) for 24 hours. Temperatures at the beginning and end of fusion are given in Table 1. To make the location of eutectic (maximum fusibility) points more precise, metallographic and thermal analysis were used. The composition of eutectic components was determined in pre- and post-eutectic alloys, and from this data the composition of the eutectic alloys was determined. The fusion temperature of alloys rich in Cr was found to be between 1580 and 1590C. The position of the eutectic point was determined at approximately 30% Zr by weight. To determine the borders of the phase zones in alloys in the solid state, roentgenostructural analysis was used. The structural diagram of Cr-Zr obtained by experimental data is given in Figure 1 of the Enclosure. This diagram confirms a diagram given by Domagala et al. with respect to the main characteristics of the solidus curve, and adds to the Domagala diagram by working out the liquidus curve. The melting point of the alloy closest to the intermetalloid in composition was found to be 1675C. The maximal solubility of Cr in the intermetalloid was marked by the intersection of the solidus curve with the eutectic horizontal line. Because of the low levels of solubility and the difficulties in its experimental evaluation, determinations of the borders

ACCESSION NR: AT4010698

of solubility were not precise. The curve of solubility of Zr in Cr was drawn approximately, according to the data obtained by microstructural analysis of two alloys with 0.51 and 1.54 % Zr. Orig. art. has: 5 figures and 2 tables

ASSOCIATION: Insty*tut metalofizy*ky* AN UkrRSR (Institute of Metallurgical Physics AN UkrRSR)

SUBMITTED: 00

DATE ACQ: 31Jan64

ENCL: 03

SUB CODE: MM

NO REF SOV: 002

OTHER: 004

Card 3/6

ACCESSION NR: AT4010698

ENCLOSURE: 01

TABLE 1

Sample number	Zirconium content, weight %	Temperature at the beginning of fusion, °C	Temperature at the end of fusion, °C	Comment
1	0.51	--	--	Thermal analysis of alloys No. 1-9 was not conducted
2	1.03	--	--	
3	1.54	--	--	
4	2.26	--	--	
5	3.5	--	--	
6	4.63	--	--	
7	5.75	--	--	
8	9.25	--	--	
9	17.16	--	--	
10	20.21	1580	1680	
11	25.24	1580	1625	
12	35.54	1590	1620	
13	36.1	--	--	
14	31.88	1590	1610	
15	42.71	1590	1650	

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ENCLOSURE: 02

ACCESSION NR: AT4010698

TABLE 1 (Continued)

Sample number	Zirconium content, weight %	Temperature at the beginning of fusion, °C	Temperature at the end of fusion, °C	Comment
16	45.21	1590	1655	
17	47.0	1640	1675	Transmutation β→ε 1150°C
18	47.1	1630	1675	
19	45.5	1620	1660	
20	46.0	1630	--	
21	46.5	1630	1670	
22	47.5	1595	1670	Transmutation β→ε 1150°C
23	48	--	1670	
24	70	1260	1475	Eutectic transmutation 840°, transmutation β→ε 1170°c
25	82	1280	--	
26	88	1270	1450	Eutectic transmutation, 830°C

Card 5/6

ACCESSION NR: AT4010698 **ENCLOSURE: 03**

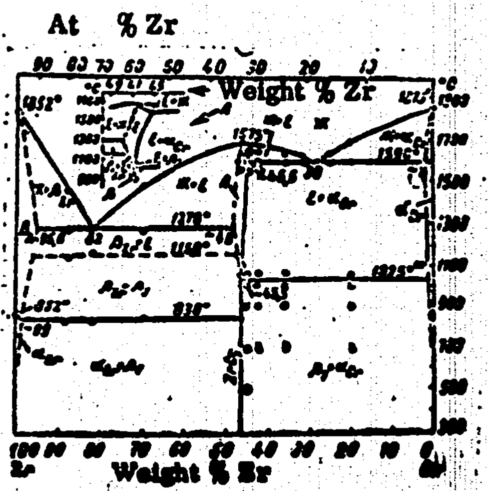

Fig. 1 - Phase diagram of chromium - zirconium
O - thermal analysis; ● - ε phase; ◐ - $\varepsilon ZrCr_2 + \alpha Cr$; γ - $\delta ZrCr_2 + \alpha Cr$.

ACCESSION NR: AT4010699 S/2601/63/000/017/0181/0186

AUTHOR: Svechnikov, V. N.; Spektor, A. Ts.

TITLE: A phase diagram of the ternary system chromium-iron-zirconium

SOURCE: AN UkrRSR. Insty*tut metalofizy*ky*. Sbornik nauchny*kh trudov, no. 17, 1963. Voprosy* fiziki metallov i metallovedeniya, 181-186

TOPIC TAGS: phase equilibrium, ternary system, alloy phase composition, metastable structure, chromium iron zirconium alloy, phase transition, peritectic plane

ABSTRACT: The authors undertake to determine the phase diagram of the ternary system Cr-Fe-Zr with not more than 45-47% Zr by weight; i.e., the part within the tetragon included between the components Cr, Fe and the intermetallic compound $ZrCr_2$, $ZrFe_2$ ($Cr-ZrCr_2-ZrFe_2-Fe$). The basic methods of investigation were: differential-thermal, dilatometric, roentgeno-structural, microstructural, durometric, thermoelectromotive, magnetic and volumetric; 365 alloys were prepared. Disposition of the basic part of the alloy is shown in the concentration triangle in Fig. 1 of the Enclosure. A diagram of the fusability of the system $Cr-ZrCr_2-ZrFe_2-Fe$ is shown in Fig. 2 of the Enclosure. The authors found that the structural diagram of Fe-Zr can be both metastable and stable;

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ACCESSION NR: AT4010699

furthermore, the diagram of the ternary system can also be metastable and stable, as shown in Figs. 3 and 4 of the Enclosure. On the sides of the tetragon Cr-$ZrCr_2$-$ZrFe_2$-Fe, corresponding binary systems were shown which have 7 non-variant lines in the case of metastable condition (Fig. 3) and 8 non-variant lines for the stable condition (Fig. 4). Another non-variant line was formed in connection with the appearance of a new intermediate phase. In both cases, near the Cr-Zr side of the diagram the phase conversions were explained by the existence of a four-phase, non-variant, peritectic plane with temperatures near 1570C and with concentrations of about 10% Fe by weight. Near the Fe-Zr side the phase transitions were explained in the diagram of metastable equilibrium by two four-phase, non-variant, peritectic planes with temperatures and concentrations near 1320C and 8% Cr and 1320C and 2% Cr. In the diagram of stable equilibrium the transitions were explained by three four-phase, non-variant, peritectic planes with temperatures and concentrations about: 1450C and 5% Cr, 1320C and 8% Cr, and 1320C and 2% Cr. Because of the small extent of the area of four-phase equilibrium it was difficult to prepare alloys which by their composition would fall into this part of the diagram. Orig. art. has: 7 figures.

ACCESSION NR: AT4010699

ASSOCIATION: Insty*tut metalofizy*ky* AN UkrRSR (Institute of Metallurgical Physics, AN UkrRSR)

SUBMITTED: 00 DATE ACQ: 31Jan64 ENCL: 04

SUB CODE: MM NO REF SOV: 005 OTHER: 006

Card 3/7

ACCESSION NR: AT4010699

ENCLOSURE: 01

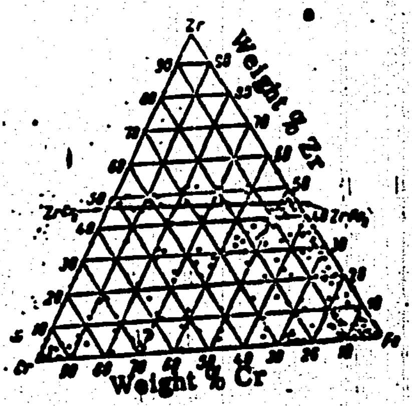

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Fig. 1 The disposition of the basic part of the alloys in a concentration triangle

ACCESSION NR: AT4010699

ENCLOSURE: 02

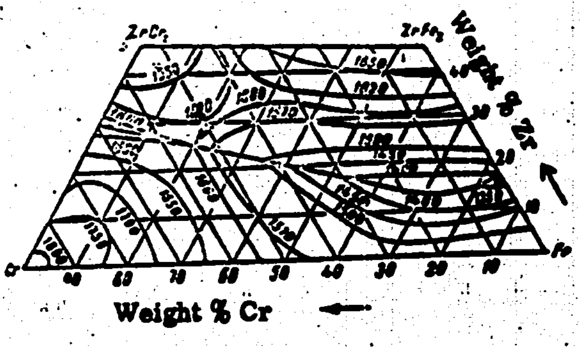

Fig. 2. The horizontal projection of the surface liquidus of the system Cr-ZrCr$_2$-ZrFe$_2$-Fe

Card 5/7

ACCESSION NR: AT4010699

ENCLOSURE: 03

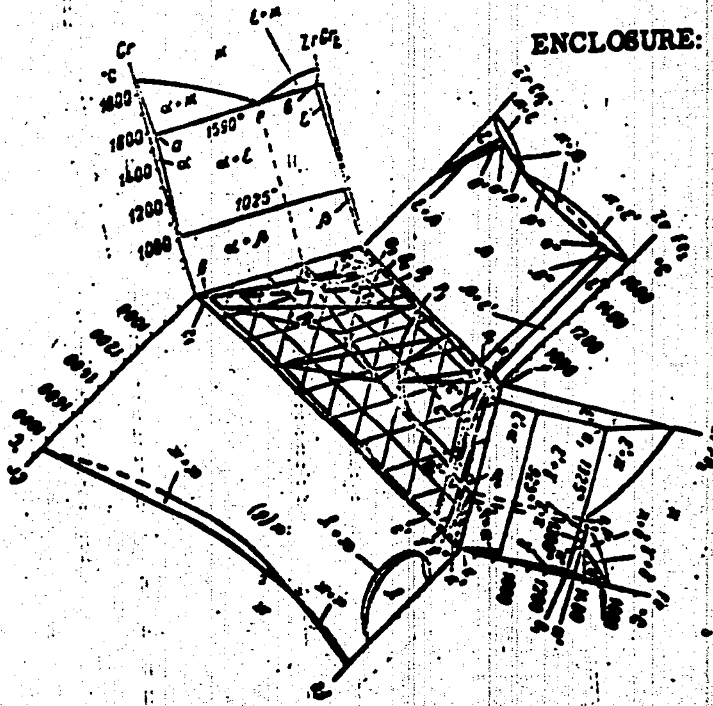

Fig. 3. Diagram of the metastable equilibria of the ternary system Cr-$ZrCr_2$-$ZrFe_2$-Fe

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ACCESSION NR: AT4010699

ENCLOSURE: 04

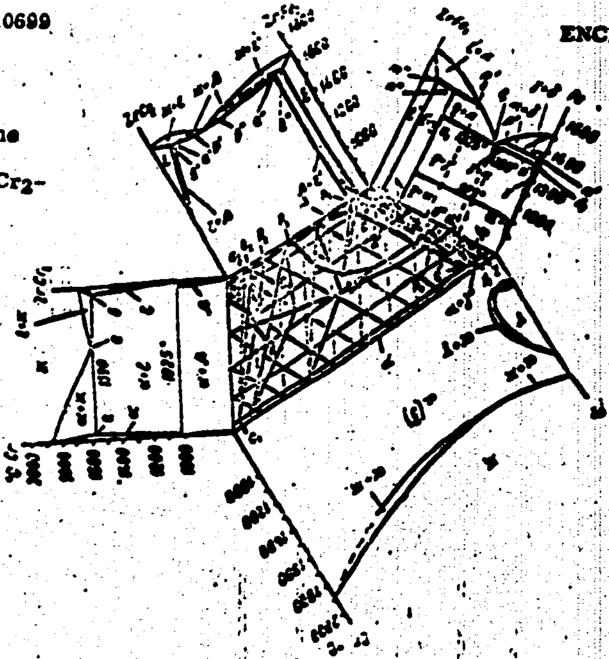

Fig. 4. Diagram of the stable equilibria of the ternary system Cr-ZrCr$_2$-ZrFe$_2$-Fe

Card 7/7

SPEKTOR, B., kand.khim.nauk

Thermophysical characteristics of insulating perlite concrete.
Bud. mat. i konstr. 4 no.1:40-42 Ja-F '62. (MIRA 15:7)
(Insulation (Heat)) (Lightweight concrete—Thermal properties)

1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

2

Electrochemical investigation of the system thallium bromide-aluminum bromide in benzene. V. A. Plotnikov and B. V. [illegible], *Zapiski Inst. Khim., Akad. Nauk U. R. S. R.* **7**, [illegible](in Russian, [illegible]-7; in German, 437)(1940).—TlBr dissolves in benzene soln. of $AlBr_3$ and forms an electrolyte. The greatest soly. of TlBr corresponds to the ratio of $TlBr/AlBr_3 = 0.5$. The elec. cond. of the soln. increases with increasing concn. and temp. At 70° the elec. cond. is 17.6×10^{-3} ohm^{-1}. The decompn. potential of TlBr in benzene soln. of $AlBr_3$ is 1.80 v. During electrolysis a deposit contg. metallic Tl was sepd. on the cathode. The current efficiency was 88% based on univalent Tl. The crystals contained the complex compd. $Tl.AlBr_4.2C_6H_6$.

B. Z. Kamich

COMMON ELEMENTS

MATERIALS INDEX

OPEN

COMMON VARIABLES

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

AUTHOR INDEX

SPEKTOR, B. V.

Chemical Abst.
Vol. 48 No. 3
Feb. 10, 1954
Metallurgy and Metallography

Gaseous carburizers from natural gas S.S.R. I. N. Frantsevich, S. I. Vitenzon, B. V. Spektor, and V. R. Brantsevich. *Ukrain. Khim. Zhur.* 16, 381-89 (1950)(in Russian).—Carburizing media were prepd. from a mixt. of propane 36.5, butane 38.3, and isobutane 24.0% by thermal decompn. in an 18-8 stainless steel tube. This steel catalyzed the decompn. The C deposited on the tube during decompn. speeded the reaction. Preliminary treatment of the steel tube with H_2 increased the catalytic effect, while treatment with O_2 decreased it. The presence of 1.5% O_2 in the mixt. depressed both the formation of C and the decompn. of complex hydrocarbons. Changes in per cent H_2 during thermal decompn. affected the reaction rate; the rate increased with increase in per cent H_2. Calcns. showed that oxides of Fe could be reduced by H_2, thus accounting for the change in catalytic activity of the tube. Thermal decompn. of a propane-butane mixt. contg. O_2 0.1 and CO_2 0.2% in a tube with a carbonized surface and with a surface-to-vol. ratio of 2.7 showed that the products at 600 and 700° were unsuitable for carburizing because they were too rich in C and had a large amt. of unsatd. hydrocarbons. Decompn. at 800 and 900° produced gaseous products that were essentially CH_4 and H_2, and at 800° a small amt. of solid products of polymerization was obtained. Therefore, thermal decompn. at 900° was best for a carburizing gas. The rate of formation of C agreed with previous data. Tests of carburizing gases were made in a lab. app. on steel 20 Kh (C 0.2, Si 0.25, Mn 0.38, P 0.03, S 0.025, Cr 0.83%, trace of Ni) at 925° with a gas flow of 6 l./hr. with a propane-butane mixt. that was decompd. in a separately heated tube at temps. from 900 to 925°. Decompn. temps. of 900 to 925° gave carburizing rates somewhat lower than the max. rate at 800°, but they were best since C deposition on specimens and the tube was avoided. The microstructure of the carburized layer was eutectoidal with a gradual transition to the core. A few fine cementite grains appeared at the surface only after long times of 10 hrs. or more. A gas flow of 6 l./hr. gave a greater depth of carburizing than lower or higher values, 3, 9, and 12 l./hr. The higher values produced free cementite. When the same carburizing gas was used a second and a third time with preheating and carburiz-

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(over)

ing temps. of 925° and gas flows of 6 l./hr., it carburized to 0.9 of the depth produced the first time. The 4th time the depth was only 0.1 and the gas could be used as a neutral atm. Carburizing at 975° produced objectionable free cementite. Carburizing at 875° was about 25% slower than at 925° but it avoided overheating the core. After carburizing at 925°, the best heat-treatment was oil-quenching after 20 min. at 875°, a second quenching after 30 min. at 700°, and tempering at 150 to 200°. This treatment gave a hardness of 58 to 62 Rc, a martensitic case, and a fine-grained core.

A. G. Guy

Spektor, B.V.

AID P - 345

Subject : USSR/Engineering

Card : 1/1

Author : Spektor, B. V.

Title : Computation and designing of cathodic protection of pipe lines

Periodical : Neft. Khoz., v. 32, #5, 81-85, My 1954

Abstract : The author analyses early methods of designing protection for pipe lines against corrosion and the existing formulas for the computation of installations of cathodic protection of pipelines having insulation coating. On the basis of experiments he considers those formulas to be unsatisfactory. The author discusses cathodic protection of many pipelines with electric current supplied from "cathodic protection units" interspaced at random and offers a few practical recommendations. One table and 5 Russian references (1946-54).

Institution : None

Submitted : No date

SPEKTOR, B.V., kandidat tekhnicheskikh nauk.

Production of foam concrete using efficient (steamless) heating.
Bet. i zhel.-bet. no.8:302-304 Ag '55. (MLRA 9:1)
(Concrete)

SPEKTOR, B.V.

USSR/Chemical Technology -- Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1701

Author: Spektor, B. V.

Institution: None

Title: Infrared Annealing in the Production of Concrete

Original Periodical: Beton i zhelezobeton, 1956, No 7, 264-266

Abstract: Before the concrete (C) can be infrared-annealed, the cast shapes must be soaked for 1-2 hours. The optimum annealing temperature when portland cement and blast furnace slag portland cement are used is 90°. The temperature must be raised as rapidly as possible; a rapid increase in temperature has no harmful effects, since the internal stresses which are produced by opposing water, vapor, and air currents in the case of the steaming of C are absent. An isothermal annealing time of 2-4 hours is recommended; at the end of that period the C attains 50-70% of the design strength. The utilization of

Card 1/2

USSR/Chemical Technology -- Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1701

Abstract: calcium chloride is equally effective as in the case of steaming. In order to avoid dehydration of the C closed forms must be used or the exposed surface of the C must be covered with a film of soluble glass. The further increase in the strength of C occurs as in the case of steaming. The application of IR-heat in the production of porous roofing slabs is described. The electric power consumption was 147 kwh/m^3 of C. A reduction of the power consumption to 120 kwh is possible.

Card 2/2

SPEKTOR, B.V.

4157. DEEP THERMAL DECOMPOSITION OF METHANE. Spektor, B.V. (Zh. prikl. Khim. (J. appl. Chem., Moscow), 1956, vol. 29, 1078-1082; from abstr. in Chem. Abstr., 1956, vol. 50, 17276). Thermal decomposition of methane in nickel or iron reactors proceeds as a heterogeneous catalytic reaction, hindered by reaction products. Iron catalyzes the decomposition after removal of oxide film. Soot accelerates the process on iron and on porcelain. Methane-hydrogen mixture with up to 96% hydrogen is obtained on passage of methane at 900° through a nickel tube with a space velocity of up to 1000 or through an iron tube pretreated with hydrogen and coated with soot at a space velocity of 100. C.A.

Fuel

SPEKTOR, B.V.

Deep thermal decomposition of methane. Zhur.prikl.khim. 29
no.7:1078-1082 Jl '57. (MIRA 10:10)
(Methane)

MORACHEVSKIY, I. I.; SPEKTOR, B. V.; RYAZANTSEV, V. I.

A method and instrument for determining the thermophysical characteristics of materials without taking samples. Teplo- i massoper. 1:61-64 '62. (MIRA 16:1)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov Akademii stroitel'stva i arkhitektury UkrSSR.

(Materials—Thermal properties)
(Materials—Testing)

SPEKTOR, B.V.; RYAZANTSEV, V.I.; KOZACHENKO, G.A.

Automatic instrument for determining the coefficient of heat conductivity of building materials and heat insulating materials. Zav.lab. 28 no.1:104-105 '62. (MIRA 15:2)

1. Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy Akademii stroitel'stva i arkhitektury USSR.

(Building materials—Thermal properties)
(Insulating materials—Testing)

DUGANOV, G.V., doktor tekhn.nauk; SPEKTOR, B.V., kand.khim.nauk;
RYAZANTSEV, V.I., inzh.; NIKITIN, A.I., inzh.

Using the TP-1 device for rapid determining of the thermal characteristics of coals and rocks. Ugol'.prom. no.4:69-70 Jl-Ag '62. (MIRA 15:8)

1. Dnepropetrovskiy gornyy institut im. Artema i Nauchno-issledovatel'skiy institut stroitel'nykh materialov Akademii stroitel'stva i arkhitektury UkrSSR.
(Rocks--Thermal properties) (Electronic instruments)

DUGANOV, G.V.; NIKITIN, A.N.; RYAZANTSEV, V.I.; SPEKTOR, B.V.

Rapid determination of thermophysical properties of rocks in a massif. Izv. vys. ucheb. zav.; tsvet. met. 5 no.4:14-20 '62.
(MIRA 16:5)

1. Dnepropetrovskiy gornyy institut, kafedra rudnichnoy ventilyatsii.
(Rocks—Thermal properties)

SPEKTOR, B.V., kand. khim.nauk; LOZHKINA, T.V., inzh.

Thermophysical properties of expanded perlitic sand. Stroi. mat. 8 no.2:35-36 F '62. (MIRA 15:3)
(Sand) (Insulation (Heat))

SPEKTOR, B.V., kand.khimicheskikh nauk; LOZHKINA, T.V., inzh.

Heat-insulating materials in low temperature conditions. Stroi. mat. 9 no.11:19-20 N '63. (MIRA 17:4)

S/032/63/029/004/006/016
A004/A127

AUTHORS: Spektor, E.V., Ryazantsev, V.I., Kozachenko, G.A.

TITLE: Automation of the process of determining the coefficient of temperature conductivity of materials

PERIODICAL: Zavodskaya laboratoriya, 29, no. 4, 1963, 447 - 449

TEXT: The coefficient of temperature conductivity is calculated by the equation $a = K \cdot \frac{\ln t_1 - \ln t_2}{\tau_2 - \tau_1}$, where K = coefficient of the body shape, which is determined by shape and dimensions of the specimen; t_1 and t_2 = temperature difference between specimen center and surrounding medium at τ_1 and τ_2 respectively. If the temperature measurements at the given time τ_1 and τ_2 can be automated and magnitude t_1 maintained constant, it is possible to fully automate the process of determining the coefficient of temperature conductivity by the method of regular heat-exchange conditions. The authors suggest the design of an automatic installation for these measurements based on the ЭПВ-01 (EPV-01) electronic potentiometer, in the housing of which

Card 1/2

S/032/63/029/004/006/016
A004/A127

Automation of the process of ...

two time relays, an РПТ-100 (RPT-100) electromagnetic relay, a contact group and an electromagnet are installed. The electric block diagram is presented and the operation of the device described. Tests showed that the straggling of results does not exceed ± 1.6%. There is 1 figure.

ASSOCIATION: Nauchno-issledovatel'skiy institut stroitel'nykh materialov i izdeliy Akademii stroitel'stva i arkhitektury UkrSSR (Scientific-Research Institute of Structural Materials and Components of the Academy of Construction and Architecture UkrSSR)

Card 2/2

MARICHEVSKIY, I. I.; SPEKTOR, B. V.

"The thermal properties of perlite-containing materials."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Sci Res Inst of STructural Materials & Products.

SPEKTOR, B.V., kand. khimicheskikh nauk

Thermal characteristics of fractionated perlite sand.
Stroi. mat. 11 no.1:29-30 Ja '65. (MIRA 18:6)

ZHUKOV, A.V.; RUDENKO, P.M.; ZENENBERG, M. Ye.; DAMASKIN, S.A.; SPEKTOR, B.V.;
KRIVICH, K.N.

Investigation of a new method of reducing the heat conductivity of hollow ceramic stone and wall panels made of it. Stroi. mat., det. i izd. no. 2:52-61 '65 (MIRA 19:1)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut stroitel'nykh matrialov i izdeliy, Kiyev (for Spektor). 2. Kiyevskiy eksperimental'no-issledovatel'skiy zavod. (for Krivich).

SHESTOPALOV, L.A.; SPEKTOR, B.Ye.

The maximum-minimum thermometer for determining the soil
temperature at the tillering node level of winter crops.
Trudy NIIGMP no.12:113-122 '64. (MIRA 18:4)

SPEKTOR, D.

VOLKOV, I.; ZABOLOTNYY, I.; LIKHOTINSKIY, V.; SPEKTOR, D.

Indexes of the mechanization of loading operations. Mor. i rech. flot 14 no.6:6 Je '54. (MIRA 7:7)
(Cargo handling)

SPEKTOR, D.

Fork lift trucks used for work within the hold. Mor. flot 18 no.7:23-24 Jl '58. (MIRA 11:7)

1.Rukovoditel' gruppy TSentral'nogo proyektno-konstruktorskogo byuro - 3.
(Cargo handling) (Fork lift trucks)

SPEKTOR, D.B.

The PTSh-1,5 automotive loader used for work in bilges and storehouses. Biul.tekh.-ekon.inform. no.7:76-78 '58. (MIRA 11:9)
(Loading and unloading)

VOLKOV, Ivan Georgiyevich; **GLIKIN**, Boris Abramovich; **ZABOLOTNYY**, Il'ya Yevtikhiyevich; **LIKHOTINSKIY**, Valentin Sergeyevich; **SPEKTOR**, David Borisovich; **YAVORSKIY**, Anatoliy Georgiyevich; **SUKHIN**, Ye.T., red.; **MARTIROSOV**, A.Ye., red.; **VAYL'**, T.I., red.izd-va; **LAVRENOVA**, N.B., tekhn.red.

[Reference book for sea harbor mechanizers] Spravochnik mekhanizatora morskogo porta. Moskva, Izd-vo "Morskoi transport," 1959. 462 p. (MIRA 13:2)

(Harbors--Equipment and supplies)
(Cargo handling--Equipment and supplies)

NIKOLAYEV, A.N.; GLADCHENKO, I.P.; BIRGAUZ, G.O.; DOBKIN, R.D.; SPEKTOR, E.I.

Window casements made of glass plastics. Plast. massy no.7:60-63 '65.
(MIRA 18:7)

15

3

Sponge rubber. R. K. Goryachev and B. M. Spektor. U.S.S.R. 101,268, Nov. 30, 1955. The pore-forming substance is added as an emulsion of an aq. soln. or aq. dispersion in mineral oil. M. Hosch

S/190/60/002/008/010/017
B004/B054

AUTHORS: Sandomirskiy, D. M., Spektor, E. M.

TITLE: Study of Vulcanization of Polychloroprene Latexes. I. Vulcanization by Hydrolysis

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8, pp. 1221-1226

TEXT: Among Soviet latexes, only the polychloroprene latexes (nairits) Л-3 (L-3), Л-4 (L-4), and Л-7 (L-7) are similar to natural latex as to strength of the gel and adhesiveness of the film. Their vulcanization by MgO or ZnO, however, is not possible because of gelatinization and coagulation. Proceeding from a reaction scheme suggested by D. E. Andersen and P. Kovacic (Ref. 6), the authors assume that the hydrolysis occurring in the polymer structuration can be used to vulcanize polychloroprene latexes. They studied the hydrolysis of nairit L-4 on two samples: Latex I made in April, 1957, and Latex II made in November, 1958. Films were made of the initial latexes, and tested for tensile strength, relative elongation, and residual elongation. The process of hydrolysis (separation of chlorine

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Study of Vulcanization of Polychloroprene Latexes. I. Vulcanization by Hydrolysis

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into the latex serum) was controlled by potentiometric titration of the latex by $AgNO_3$ (carried out by S. S. Guseva). The hydrolysis was studied under the following conditions: a) hydrolysis by aging (Latex I, 24 months); b) hydrolysis by heating (Latex II, 25 h to 95°C); c) hydrolysis by heating and adding 2 parts by weight of KOH. Films were again made of the latexes thus treated, and tested. The results are: The hydrolysis of nairit latexes produces changes in the physical and mechanical properties of films similar to those occurring in vulcanization. The tensile strength increases without a change in relative elongation. An addition of alkali and a temperature increase accelerate this process which may be considered to be a kind of "vulcanization". There are 3 figures, 2 tables, and 14 references: 7 Soviet, 5 US, 1 British, and 1 German.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov). Zavod "Krasnyy Bogatyr'" ("Krasnyy Bogatyr'" Plant)

SUBMITTED: March 30, 1960

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S/190/61/003/002/007/012
B101/B215

15-9120

AUTHORS: Sandomirskiy, D. M., Spektor, E. M.

TITLE: Study of the vulcanization of polychloroprene latexes. II. Sulfidizing

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 2, 1961, 255-261

TEXT: It was the purpose of the present work to simplify the vulcanization of polychloroprene (PCP) so that the final product, the PCP film, no longer separates HCl when stored. The Л-4 (L-4) PCP latex nairit was used for the experiments. Alkali polysulfides were found to react with L-4 latex already at temperatures (20-90°C) at which no reaction occurs with natural latex. This interaction therefore was studied in detail. Films of sulfidized latex underwent the following procedures: 1) physicomechanical examination by traditional methods; 2) determination of expansion in benzene; 3) determination of flow at constant elongation; 4) determination of the T-50 index expressing the crystallizability at lower temperatures,

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and the degree of vulcanization by the T-50 (T-50) apparatus of the zavod "Krasnyy bogatyr'" ("Krasnyy bogatyr'" Plant). For 6 min the films were cooled down to -60°C; initial elongation: 500%. Melting took place at a rate of 2 degr/min, the relative elongation was measured after every 5°C. 5) Determination of bound sulfur by washing out of unbounded polysulfides, determination of the S remaining in the film, and that contained in the initial latex by Kjeldahl's method. Table 1 gives the data of the film precipitated by $CaCl_2$ (latex first had been diluted to 30%). A) The interaction of polysulfides and PCP latex nairit L-4 at 90°C (one portion by weight of S in the form of K_2S_5 per 100 weight portions of dry substance of L-4) showed that an intensive decomposition of polysulfide is accompanied by the liberation of H_2S so that no constant concentration of polysulfide was found. Hence B) examination of the interaction at room temperature (two portions by weight of S per 100 portions of dry substance, larger additions of sulfur deteriorated the film formation). The reaction thus occurring between polysulfide and latex was also found in СКС -30Ш

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(SKS-30Sh) latex. The following reaction is therefore assumed: $K_2S_5 + \frac{3}{2}O_2 \rightarrow Na_2S_2O_3 + 3S$, which is activated by the globuli of latex, the polymerization initiators contained in it, etc. C) Since thiosulfate thus proves to be a component of the process, its interaction with L-4 and thiosulfate was examined at room temperature (three portions by weight of $Na_2S_2O_3$ per 100 portions by weight of dry substance of L-4). The results are depicted in the following diagrams. Fig. 2: kinetics of the interaction polysulfide - latex; Fig. 3: expansion of the film obtained by polysulfide, in benzene; Fig. 4: tensile strength and T-50 index of the film of latex treated by thiosulfate; Fig. 5: kinetics of the interaction latex - thiosulfate. The discussion of the results led to the following conclusions: 1) K_2S_5 enters into reaction with two chlorine atoms of the allyl group thus initiating cross linking of the polymer chain by a chain of 5 S atoms (reaction I); 2) $Na_2SO_2O_3$ only reacts with a 1.2 bond under the formation of Bunte salt (reaction II). Further reactions led to the decomposition of

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Bunte salt, liberation of sulfur, and cross linking. The resistance to frost of the latex (T-50 index) treated with polysulfide is shown in Fig. 6. The accumulation of sulfur is terminated in section Aб. Sulfur is accumulated as Bunte salt (thus decreasing the mobility of the chains), or in the form of polysulfide cross links consisting of five S atoms. T-50 does not change in this section. An increase in the resistance to frost occurs in section Гв due to the decomposition of Bunte salt into disulfides, decomposition of polysulfide chains, and accumulation of S on the double bonds. The decrease in the swelling power in benzene corresponds to this section. The second increase of the T-50 index in section ВГ has not been explained. A comparison of the diagrams with Figs. 2 and 5 shows that 75% of sulfur is accumulated after reaction I. Stabilization of the polymer is due to the fact that the whole amount of allyl chlorine is substituted by S after 4 hr. The removal of unstable chlorine from PCP therefore becomes successful by the above method at room temperature. There are 6 figures, 2 tables, and 22 references: 13 Soviet-bloc and 9 non-Soviet-bloc. The three references to English language publications read as follows: D. E. Andersen, P. Kovačić, Industr. and Engng. Chem. 47, 171, 1951; P. Kovačič, Industr. and

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S/190/61/003/002/007/012
B101/B215

Study of the vulcanization of...

Engng. Chem. 47, 1090, 1955; A. Chiesa, Rubb. Chem. Techn., 27, 648, 1954.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology). Zavod "Krasnyy bogatyr'" ("Krasnyy bogatyr'" Plant)

SUBMITTED: July 3, 1960

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SPEKTOR, E.M.; SANDOMIRSKIY, D.M.

Vulcanization of polychloroprene latexes. Part 3: Effect of hydrolysis on ionic deposition. Vysokom.soed. 3 no.8:1181-1186 Ag '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova i Zavod Krasnyy bogatyr'.
(Chloroprene)

S/138/63/000/003/002/008
A051/A126

AUTHORS: Spektor, E. M., Sandomirskiy, D. M.

TITLE: Hydrolyzed chloroprene rubber in rubber mixes

PERIODICAL: Kauchuk i rezina, no. 3, 1963, 5 - 8

TEXT: Tests were conducted with the addition of structuralizing polymers to rubber mixes with the purpose of improving the technical properties of the latter. The authors used hydrolyzed chloroprene rubber, nairite ЛГ (LG) as the structuralizing polymer. The latter was produced by heating serial chloroprene latex Л-4 (L-4) for 6 - 8 hours, at 90°C, in the presence of 2 weight parts of KOH (to 100 w.p. of rubber in the latex). The LG nairite was mixed with natural, isoprene, butadiene-styrene and chloroprene (nairite B) rubbers, and it was noted that best results are obtained for compatibility when natural and chloroprene rubbers are used. The results of the experiments with these rubbers are submitted: in the case of mixes based on LG nairite and natural rubber, it was established that the following conditions are needed to create a single spatial lattice which, in turn, would result in the best rubber properties: a) unity

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of the transverse bonds and with that of the vulcanizing agent for both rubbers; b) synchronization of the vulcanization kinetics of both components in the rubber mix. It was concluded that in the hydrolysis of chloroprene rubber in the latex, conditions of covulcanization with natural rubber are improved. When replacing part of the chloroprene rubber (nairite B) by nairite LG in mixes with a large quantity of softener, the technological properties of the raw rubber mixes and the physico-mechanical properties of the vulcanizates are improved. If LG nairite is introduced into the mix based on NR, the setting of the mixes is reduced after calandering. The physico-mechanical properties of the vulcanizates come close to those of vulcanizates based on natural rubber alone. There are 3 tables and 3 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova i zavod "Krasnyy bogatyr'" (The Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov and the "Krasnyy bogatyr'" Plant)

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SPEKTOR, E.M., inzh.

Gluing compound made of bitumen modified with rubber. Stroi. mat. 10 no.1:10 Ja'64. (MIRA 17:5)

ACCESSION NR: AP4029004 S/0126/64/017/003/0445/0452

AUTHOR: Spektor, E. N.; Rakshshtadt, A. G.; Gorelik, S. S.; Sagalova, T. D.

TITLE: The effect of annealing before recrystallization on the elastic properties and structure of cold rolled metals and alloys with face centered cube lattice

SOURCE: Fizika metallov i metallovedeniye, vol. 17, no. 3, 1964, 445-452

TOPIC TAGS: pre-crystallization annealing, elastic property, structure, cold rolled metal, cold rolled alloy, face centered cube, face centered cube lattice, copper, nickel, A7 bronze, L68 brass, Kh20N80 nichrom

ABSTRACT: An increase of the elasticity range, the microhardness, as well as a change in the anisotropy of the elasticity range, takes place during the pre-crystallization annealing process of pure metals and alloys with a face centered cube lattice (copper, nickel, A7 bronze, L68, Kh20N80). The width of the x-ray interference, the character of the grain and the electro-resistance changes thereby insignificantly; only a certain change in the intensity and scattering of grain maximums is observed. The authors assume that the main cause of an increase in the elasticity range is the redistribution of dislocations rather than by polygonization. A stronger effect in the case of alloys is obviously associated with the simultaneous

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ACCESSION NR: AP4029004

occurrence of diffusion processes which lead to the formation of "clouds" around the dislocation. The purpose of this paper is to investigate the mentioned anomaly in the change of elastic properties and their anisotropy, on a number of pure metals and alloys with a face centered cube lattice, as well as the study of the physical properties and structural changes in order to expose the nature of this interesting phenomenon. The method and materials used, as well as the experimental instruments, are described in detail. The results are given in figures and tables. In conclusion, the authors claim that in the case of pure metals and alloys, hardness and resistance toward small plastic deformations increases in process of pre-recrystallization annealing, when its anisotropy drops. This effect is more apparent in alloys. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute of Steel and Alloys)

SUBMITTED: 11Mar63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 007 OTHER: 004

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ACCESSION NR: AP4029009 S/0126/64/017/003/0474/0476

AUTHOR: Gorelik, S. S.; Spektor, Ya. I.; Spektor, E. N.

TITLE: On the character of the martensite grain texture after thermal mechanical treatment

SOURCE: Fizika metallov i metallovedeniye, vol. 17, no. 3, 1964, 474-476

TOPIC TAGS: Martensite, thermal mechanical treatment, 40KhSNA steel, EI-643 steel, VL-1 steel, 1Kh18M9T steel

ABSTRACT: The purpose of this paper is to establish the orientations and crystallographic relations between grains of austenite and the grain of martensite after tempering, in the case of the 40KhSNA, EI-643, and VL-1 steels after a low temperature thermal-mechanical treatment. All steels were deformed under identical conditions. A 70% deformation of a mashined hallow ingot was achieved with a cross sectional ball rolling method. The paper figures were constructed with the aid of a grain attachment to an x-ray installation by the "reflection" method. Before x-raying, samples of the ingot were submerged up to 0.1-0.2 mm in orthophosphoric acid. The results of the investigation are shown in polar figures and in x-rays of the two types of steel, 1Kh18N9T and 40KhSNA. The basic grain maximum of martensite, located

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analogously to austenite, are outlined by the $[11\bar{2}]$ [110] orientation which is one of the α-iron characteristics. In a similar selection of orientations which correspond to the grain maximum, a structural conformity of directions in the lattice of austenite and martensite was observed resembling very closely the correlation described by Kurdyumov and Zaks; [111] parallel to [110] (Kurdyumov, G.; Zaks, G. Vestnik Metallopromy*shlennosti, 1930, vol. 9, no. 165). Orig. art. has: 2 figures

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Steel and Alloy Institute)

SUBMITTED: 01Jun63 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: ML NO REF SOV: 004 OTHER: 000

Card 2/2

137-58-4-8182

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 261 (USSR)

AUTHORS: Gorelik, S.S., Gracheva, Yu.V., Korneyev, N.I., Skugarev, I.G., Spektor, E.N.

TITLE: Relaxation and Recrystallization of Single-phase and Aging Nickel-base Alloys (Otdykh i rekristallizatsiya odnofaznykh i stareyushchikh splavov na nikelevoy osnove)

PERIODICAL: Sb. Mosk. in-t stali, 1957, Vol 36, pp 103-130

ABSTRACT: X-rays were employed to determine the temperature of onset and end of recrystallization due to treatment (t_p^i and t_p^f), and the relaxation processes in hot-worked nichrome base (13% Cr) alloys with added Al, Ti, B, Mo, and W, introduced individually and jointly in various combinations. These factors were studied on the basis of the width and intensity of the $(331)\alpha$ reflexes. The t_p^i and t_p^f curves are presented as functions of the degree of deformation (D), also the relationship of hardness, lattice spacing of the base metal in the alloy, the intensity, and the spread of the $(331)\alpha$ reflex to the temperature of D (which ranged from room temperature to 1200°C). Three-dimensional diagrams of the recrystallization (R) interval were plotted in the following

137-58-4-8182

Relaxation and Recrystallization (cont.)

coordinates: degree of D, temperature and heating time. It was shown that the individual introduction of B, Mo, and W into nichrome does not result in any significant change in t_p^i, but that an increase in t_p^f occurring in accordance therewith increases the R interval. Separate and joint additions of Al and Ti in various combinations with Mo and W (two-phase alloys) increase t_p^i and t_p^f the more, the higher the temperature boundary of the transition of these alloys to the single-phase state. This is related to the inhibition of R nucleation by aging processes. For single-phase alloys, t_p^i depends upon the degree of D, diminishing with increase in the latter, but in the case of two-phase alloys there is no dependence upon the degree of D. At all temperatures, a greater expansion of the reflexes was observed in the aging alloys. In cases of low D, restoration of the line width and intensity of the alloys studied occurs up to the moment of onset of R. When D is high, this process is only partial and undergoes completion at t_p^i or above. In aging alloys, the processes of removal of lattice distortions are inhibited.

1. Nickel alloys--Phase studies A. B.

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